



Quarterly Magazine Vol. 20 No. 1 1997 ISSN 0388-6115

# JAPAN

## P I C T O R I A L

Where Is Our  
Water Going?



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**Cover photo:**

*The Chishaku River in Chishaku Town, Yokkaichi City, Mie Prefecture was selected as one of Japan's "Select 100 Exquisite and Well-Conserved Waters." Once known as a river of garbage, the Chishaku has been transformed thanks to the stocking of carp and an assiduous beautification campaign by the town's residents. As a result, the town of Chishaku has earned a new reputation as a place where carp flourish and the water is clean.*

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Japanese culture has focused on water since ancient times. How will the Japanese people deal with the numerous water problems facing them today – from epidemic river floods to latent pollution of the aquatic environment?



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#### Experiencing Everyday Life in Japan

"The place where one stays is one's second home town" applies to all of those people who seek a link between themselves and a particular region through volunteer and peace activities. So what do home-stay visitors see and experience?



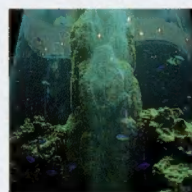
#### Business and the Lunch Hour

As far as busy Japanese business people are concerned, having a good lunch in limited time is all part of the job. We take a look at lunchtime on a typical day in the business districts.



#### The Modern Way to Relax

Business people are loaded with mental and physical stress. Their focus is on various means to relieve stress in as short a time as possible — the latest tips on relaxation!



#### Turning Seawater Into Fresh Water Using "Membranes"

As a last resort in combating chronic water shortages, desalination technologies, such as reverse osmosis systems, are being used with great success. The low cost of reverse osmosis also makes it an extremely attractive option.



#### A Special Affinity for Pottery

Japanese pottery comes in many varieties – from the clay and techniques used, to the designs and shapes employed. We investigate the special affinity Japanese have for their pottery, highlighting the unique way this cultural art form is applied to everyday eating utensils.

#### What Are Japanese Business People Reading These Days?

As evidenced by the latest business-related best-sellers, a deep new psychology is emerging which reflects the sudden changes in Japan's business climate.

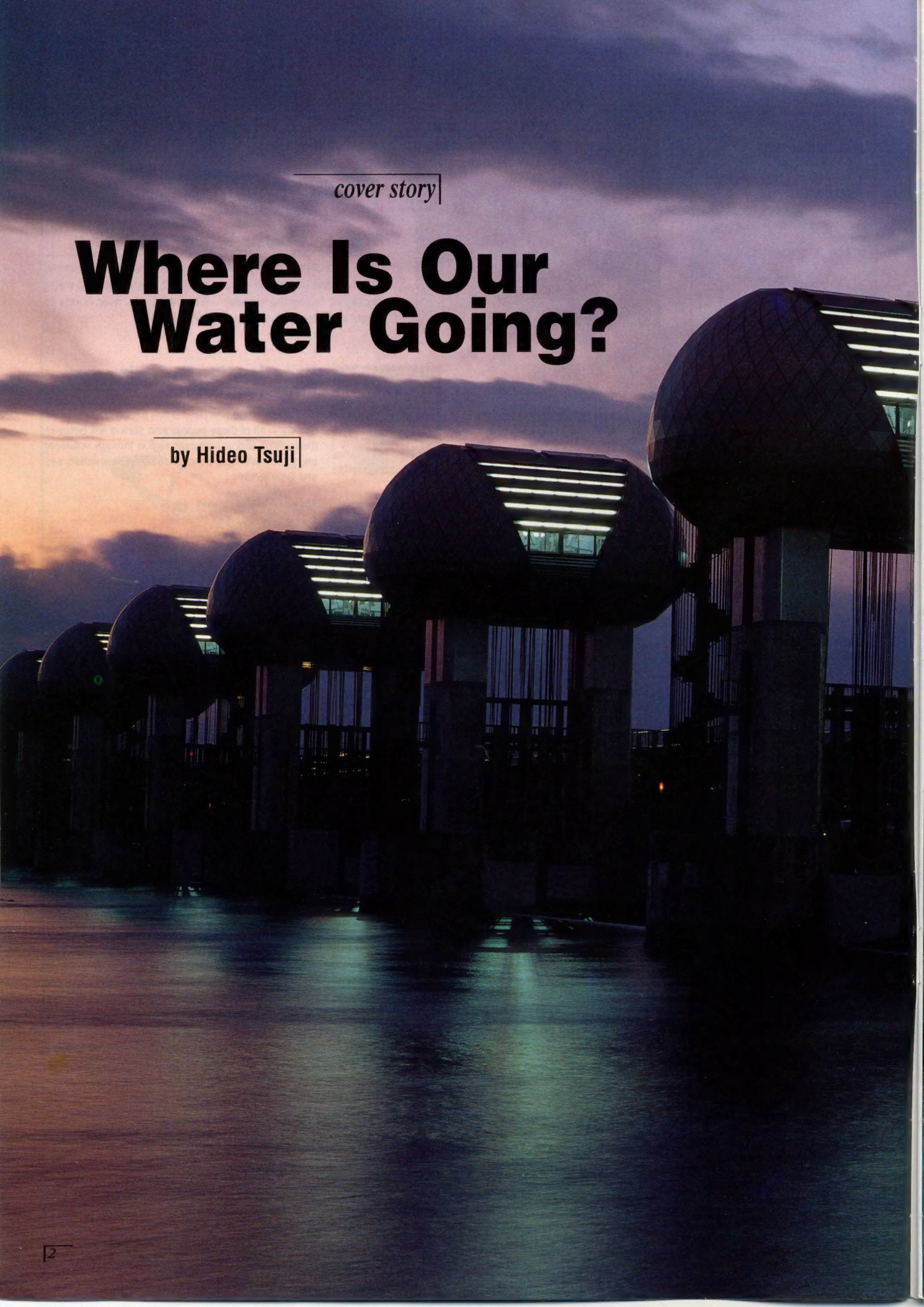
#### Readers' Voice

In answering our readers' letters, we address such topics as "Backpacking in Japan," "Japanese Household Finances," and "Japanese Tea."

#### Water Use – An International Comparison

Japan is poor in water resources – these charts compare per-capita rainfall, dam capacities, and river gradients and flow volumes between Japan and other countries.



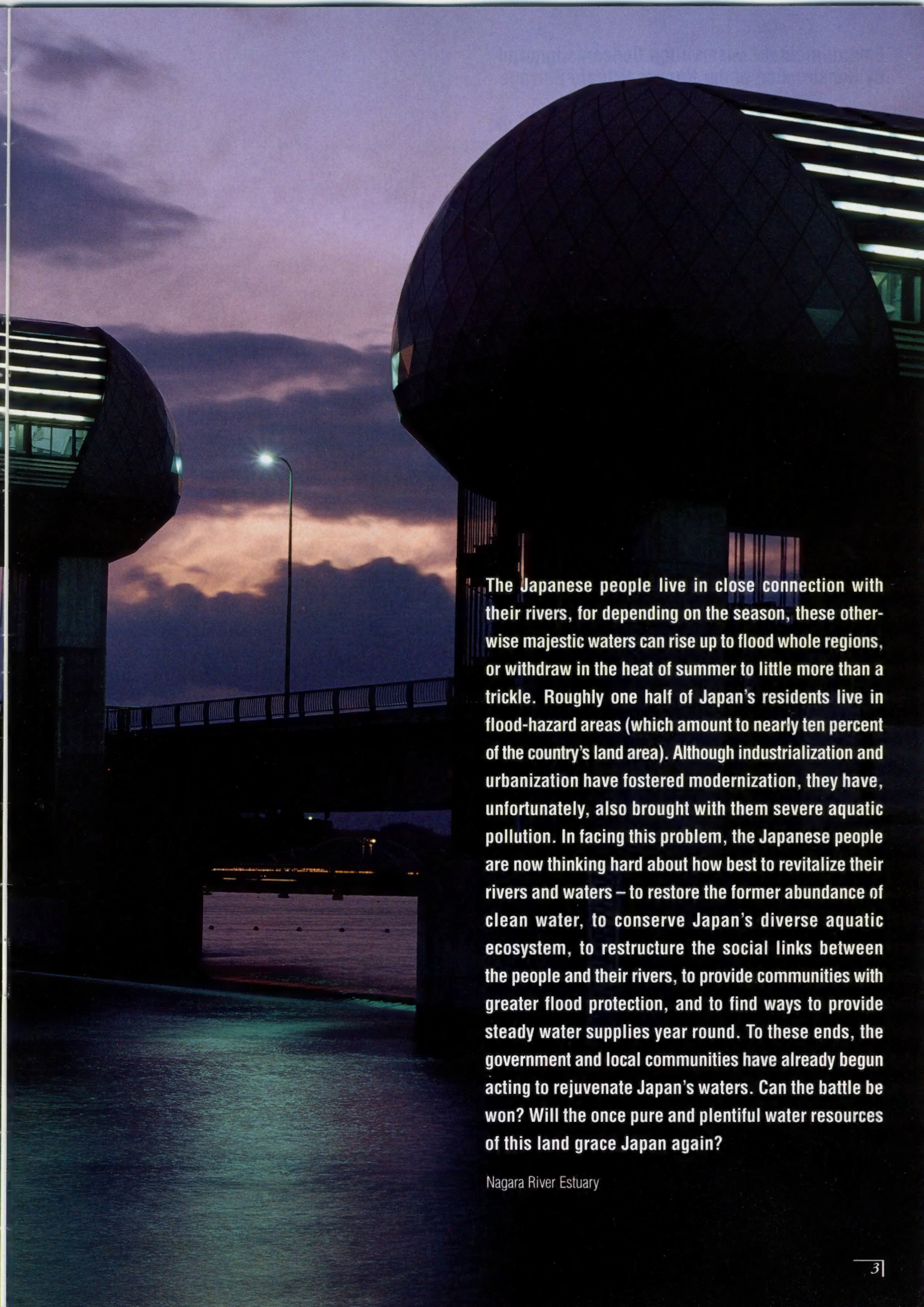


*cover story*

# Where Is Our Water Going?

by Hideo Tsuji





The Japanese people live in close connection with their rivers, for depending on the season, these otherwise majestic waters can rise up to flood whole regions, or withdraw in the heat of summer to little more than a trickle. Roughly one half of Japan's residents live in flood-hazard areas (which amount to nearly ten percent of the country's land area). Although industrialization and urbanization have fostered modernization, they have, unfortunately, also brought with them severe aquatic pollution. In facing this problem, the Japanese people are now thinking hard about how best to revitalize their rivers and waters – to restore the former abundance of clean water, to conserve Japan's diverse aquatic ecosystem, to restructure the social links between the people and their rivers, to provide communities with greater flood protection, and to find ways to provide steady water supplies year round. To these ends, the government and local communities have already begun acting to rejuvenate Japan's waters. Can the battle be won? Will the once pure and plentiful water resources of this land grace Japan again?

Nagara River Estuary



## Environmental Conservation Concerns Ignored by Construction of the Nagara Estuary Barrage

The Nagara River, a major river with a basin area of 1,985 square kilometers, flows into Ise Bay after winding its way through a 165-kilometer course from its source in the Dainichidake Mountains some 1,709 meters above sea level near Takasu Village, Gujo County, Gifu Prefecture. This river has become a virtual wellspring of major social issues centering on what might be termed, "the development and preservation of the natural environment," or "the Japanese and their strategies for improving the aquatic environment." The start of all this was the Nagara River Estuary Barrage, which was completed in 1995.

Following a 1968 Cabinet Decision, a basic plan was implemented to construct the 661-meter-long Nagara River Estuary Barrage, with the aim of supplying water to the industrial belt surrounding Ise Bay (one of the three major industrial areas in Japan), for urban usage and flood control. The building of the dam took 27 years from conception to completion in March 1995. It took this long for a variety of reasons which included: the presence of Nagara River basin residents groups who opposed the construction, as well as lawsuits to prevent construction work; problems relating to how water use burdens should be borne among the local self-governing organizations; and strong opposition from people in the fishing industry. As a result, the start of construction was greatly delayed.

Even after construction finally began on the main part of the Estuary Barrage in 1988, various academic groups, including the Japan Fish Association and the Japan Ecological Association, presented their protests against the Estuary Barrage and issued a list of demands to the Construction Minister, and a Citizens' Conference Against the Construction of the Nagara River Estuary Barrage was organized by 62 citizens groups nationwide. Various problems relating to the Estuary Barrage, such as those raised by these active opposition groups, became major social issues for all of Japan, including how to deal with the administration of flood control measures and usable water reserves, while simultaneously responding to requests from residents for a better river environment.

Within Gifu and Mie Prefectures, which had hitherto repeatedly suffered from water damage from Nagara River flooding, the foremost objective of the government was to effect protection measures as quickly as possible by raising the flood control safety level through the dredging of the river bed. In this area, where dam construction was geographically difficult, there were high hopes that long-term flood control measures could at last be implemented through the completion of the Nagara River Estuary Barrage. Furthermore, the Ministry of Construction and the Water Resources Development Corporation conducted a survey before beginning operation of the Estuary Barrage to investigate disaster-prevention and environmental factors; the results of the survey were made



This shallow fish path is on the overflow levee on the right bank of the Nagara River Estuary Barrage. A stream resembling a natural brook was created to allow a wide range of fish to travel upstream.

public, and the situation in the area has been monitored continuously since operation of the Estuary Barrage began.

However, certain citizen groups demonstrated environmental problems by pointing out that water quality had deteriorated as a result of the construction and operation of the Estuary Barrage, and that this had had an adverse impact on the river ecosystem (including a reduction in the number of *ayu* and *satsukimasu* salmon swimming upstream). They therefore held that environmental problems had already manifested in the area as a result of accumulated sludge, and cited as further evidence the reduced numbers of *yamato corbicula*, a shellfish of local popularity.

The group also cited the specific example of the Town of Nagashima, which is sandwiched between the Kiso River and the Nagara River at an elevation of 1.7 meters below sea level. The town's exposure in this regard is a cause of real concern for some of its residents, for if a calamity like an earthquake or tsunami were to jeopardize the structural integrity of the Estuary Barrage, then the town could become inundated by any subsequent floodwaters.



Activists raise their paddles simultaneously in a gesture of protest against the Nagara River Estuary Barrage. (September 16, 1996)



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In response to the issues raised by these citizen groups, the authorities have monitored the situation both in terms of disaster prevention and environmental conservation and made public the results in order to give the basin residents an objective indication of the level of disaster safety and the river environment, while at the same time stressing the importance of taking appropriate flood prevention and water resource measures. Moreover, the government (primarily the Ministry of Construction) set forth its stance on the issue, emphasizing environmental aspects. In considering the example of problems surrounding the Nagara River Estuary Barrage, the government held that in future river control and construction efforts, the need exists for river administration to focus on ecosystem conservation and restoration, natural scenery and water quality; such needs are being reflected through the launching in November 1996 of a coordination meeting with the Environment Agency and in the policy outlined in the Flood Control Five-Year Plan which goes into effect in FY1997.

Views are exchanged directly between the government and the residents living near the river basin regarding the impact from the operation of the Nagara River Estuary Barrage and its effect on the environment. (April 29, 1995)



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Citizens groups conduct a survey once a month on what effect is conferred on the lives of corbicula (the Nagara River is famous for this shellfish) as a result of the construction and operation of the Nagara River Estuary Barrage.





Lake Biwa, which has the largest fresh water lake in Japan, shows no improvement in water degradation as a result of the inflow of chemical substances from household and industrial waste.





Approximately 20 liters of used oil yields roughly 35 kilograms of powdered soap.

Additionally, in the new national comprehensive development plan currently being drafted, consideration is being given to the Basin Area Concept, which will provide a comprehensive framework for promoting more efficient water use and preventing water-related damage in the basin area.

### Lakes With Unimproving Water Quality

The rivers, lakes and seas of Japan face acute water quality problems as a result of the large volumes of untreated waste flowing into them. This dilemma arose from Japan's rapid economic growth since the mid 1960s. Diseases caused by water quality degradation have occasionally become significant social problems. To combat water quality degradation, the government has implemented restrictions on waste by enacting the Water Pollution Control Law in 1970, and on factory waste by laying down a system in 1978 to limit the volume of effluent in order to deal with organic deterioration. As a result of these measures, the water quality of Japan's rivers has improved. In particular, the extent of water quality degradation due to organic substances such as cadmium and cyanin has now virtually disappeared.

However, it is a fact that there has been no such water quality improvement in certain closed water areas, such as lakes and bays, nor in smaller rivers and streams within cities. This may be attributable to water stagnancy, which allows pollutants to accumulate easily, and to the high degree of concentration of both people and industries in such areas, making pollution

Many nations in Asia have expressed a high level of interest in this kind of household compound cleansing tank.



(specifically, household waste) the main cause of water quality degradation. Because various household and restaurant wastes comprise such a wide range of compounds, creating specific countermeasures for their impact on the environment is not an easy process. Household waste, which contains nitrogen and phosphorus from composite detergents, causes the eutrophication of lakes, and is the main cause of water quality degradation. For example, at Lake Biwa (the largest lake in Japan, with a circumference of 235.2 kilometers, located in Shiga Prefecture), which holds drinking water for all of the neighboring prefectures' 14 million residents, water quality degradation became acute beginning around 1975. At its nadir in 1994, duckweed grew in abundance. Other water weeds whose growth was remarkable included the *Elodea nuttallii* and the *Egeria densa*; red tide was even found in fresh water (near the Great Bridge of Lake Biwa). This case of fresh water red tide remained for three continuous years between 1982 and 1985, creating noxious odors similar to that of sewage which alarmed those who depended on the lake as their source of drinking water.

### Initiatives to Prevent Water Quality Degradation in Lake Biwa

In order to prevent water quality degradation in lakes and closed water areas, women's groups, cooperatives, and town and village committees performed the important task of putting into motion various activities to prevent such degradation in Lake Biwa, specifically. These activities



included the launching of campaigns to replace the use of composite detergents with soap, as well as the compilation and distribution of pamphlets entitled, *Life in a Lake-Friendly Country*, which provided lifestyle tips on how not to contaminate rivers and lakes.

One of these groups is the Ecological Cooperative Union of Shiga (3,700 members, led by Chief Director Ayako Fujii), which is comprised of ordinary citizens (company workers, housewives and so on) and was established with the aim of developing, selling and promoting ecological products. It undertook initiatives to prevent water quality degradation in Lake Biwa, which included distributing household containers for soapy water, producing and selling soap made from discarded oil as a raw material, and refining discarded oil into diesel engine fuel. Homes using such soapy water containers (which may be buried in home gardens) automatically reprocess household waste water and thus conserve drinking water by using this reprocessed water to flush toilets and irrigate gardens. Diesel engine fuel made from refined discarded oil contributes to resource conservation while at the same time preventing water quality degradation; it also has a high yield (in other words, the same quantity of product is yielded whether the raw material is discarded oil or new oil).

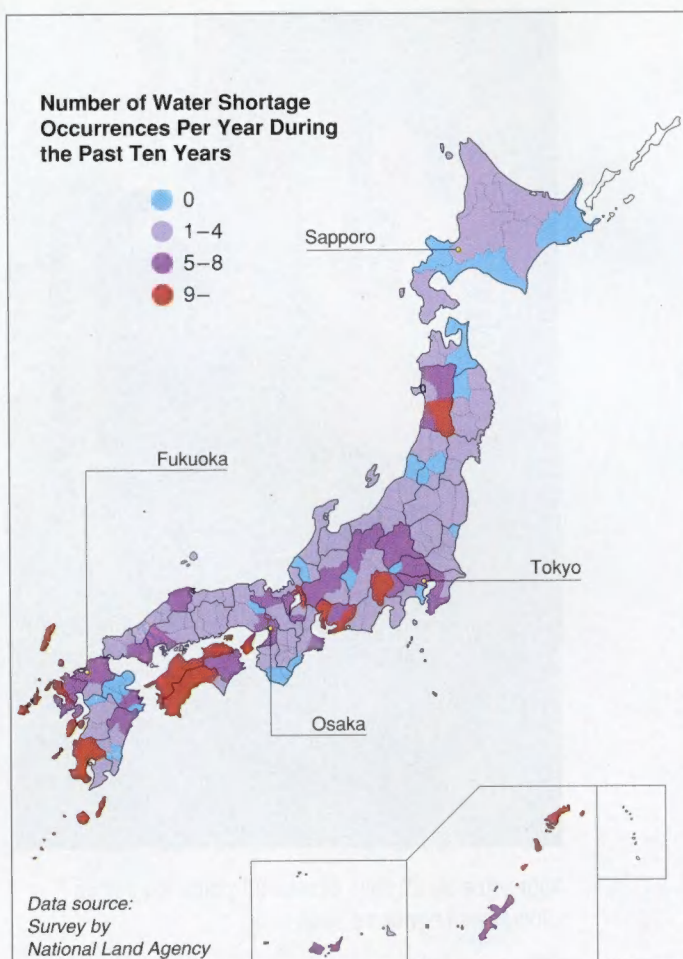
In response to such moves from private groups, the government has made efforts to reduce pollution through a series of laws which include the Shiga Prefectural Sludge Ordinance Concerning the Prevention of the Eutrophication of Lake Biwa (1979), which was the first ordinance in Japan to restrict phosphorus by banning the use and sale of household composite detergents, and the Clean Lakes Law (1984). Both of these measures were aimed at preventing the eutrophication of water areas within Shiga Prefecture.

## Water Shortages Continue in Japanese Cities

The average annual precipitation in Japan is 1,714 millimeters, and though this greatly exceeds the global average of 973 millimeters, the volume of precipitation per capita is only 5,300 cubic meters (compared to a global average of 27,000 cubic meters). This is only about one-fifth of the world average, since Japan is a country with scarce land and a large population.

Japan's topography is quite mountainous and its river basins are narrow, with steep gradients. Thus, changes in the river flow volumes are enormous, so that when rain falls, water levels increase sharply, and conversely, when there is little rain, levels plummet in almost no time at all.

Furthermore, considering the characteristics of Japanese weather, river flow volumes are greatest during times of rain, typhoons, and melting snow, as differences in the volume of precipitation vary widely according to the season. In order to cope with such changes in water flow volumes,



Water shortages occur frequently all over Japan, putting the country in a delicate predicament at such times. This map illustrates the number of water shortages which befell water mains and other water supplies in Japan between 1977 and 1995.

it is necessary to replenish reserves when flow volumes are high, and to have water resource development facilities (such as dams) in place, which serve as reservoirs for when flow volumes are low. Based on the per-capita water reserve levels of the world's major cities, Japan's water reserves are dangerously low in comparison. Characteristically, annual water shortages occur all over Japan, placing significant social pressure on communities involved. To secure sufficient water reserves from a scarcity of resources, efforts are underway to increase water storage capacity and to enhance water use efficiency. (Please refer to *FYI* on page 33 for related data).

Also, within the Tokyo metropolis alone, roughly 1.727 billion tons of water are channeled to serve the daily needs of 4.8 million households (as of FY1995), and from this flow, 9.3% is lost to leakage. Efforts to curb such leakage are now underway.

## Initiatives for Addressing Water Problems — Preventing Degradation and Saving Water

Water flows from in a never-ending cycle from the mountains, through the rivers, out into the sea, and back again. Humans have an obligation to support this cycle in their cities,





With the aim of utilizing scarce resources more efficiently, the Tokyo Metropolitan Government's Bureau of Waterworks has even gone so far as dispatching nighttime leakage patrol teams to track down waste at its source. The Bureau of Waterworks is aiming to reduce leakage to 7% of the total water volume by the year 2000.

making water conservation a priority issue. Within the 12 sewage disposal sites under the supervision of the Bureau of Sewage of the Tokyo Metropolitan Government (which every day processes some 4.6 million cubic meters of sewage produced by the nearly 3.55 million households within Tokyo's 23 wards), water that is reprocessed from sewage is supplied to various city facilities for use in toilets, extinguishing fires, industrial applications, as well as environmental and miscellaneous applications. For example, at the Ochiai site, which is one of the sewage processing sites, water is not only supplied for use in toilets in high-rise buildings in Shinjuku, but reprocessed water flows into the Kanda River in the heart of the city. As a result, 90% of the water volume of the Kanda River, which once suffered from water quality degradation, is made up of reprocessed water, and it is now becoming a clean river in which fish can once again thrive. Also, a small park with streams has been constructed right above the site as a rest area for local residents. These small streams, using reprocessed water are a welcomed sight for children who play in them in the summer.

What kinds of activities are being developed throughout Japan for water conservation and the prevention of water quality degradation? In Fukuoka City, Fukuoka Prefecture,



A "village full of streams" has been created through which clean, reprocessed water flows. It is a rest place for village folk, and in spring and summer children play about in the stream.

which experiences water shortages, the Environmental Bureau and the Better Home Association have developed cooking methods which conserve water, and they hold regular "ecological cooking classes" which train people to conserve water by first wiping off dirty dishes before washing them with detergent. At the Association for the Promotion



of the More Effective Use of Rain Water (a private group in Nagoya), rain water is used as bath water, or, after filtration, as drinking water. Also, large-scale sports facilities, like the *Kokugikan* International Stadium or Tokyo Dome, have been designed from the start with rain water utilization as a given. The water authorities within the City of Shimizu in Shizuoka Prefecture are installing water conservation devices at no extra charge. These devices can reduce the amount of water used by one half, as the flow of water out of faucets is reduced. As an alternative to using composite detergents such as shampoos (which are the main cause of water quality degradation), the Japan Natural Salts Promotion Association, located in Matsuyama City, Shikoku, is conducting seminars and distributing pamphlets which promote "washing the body with natural salts." Through various activities, initiatives to prevent water quality degradation and encourage water conservation are gradually gaining momentum on the household level.

### Initiatives for Addressing Water Problems – Maintaining Forests, Rivers and Seas

At Mt. Murone (895 meters high), the source from which the Okawa River flows to Kesennuma Bay, Miyagi Prefecture, wide-leaved trees like the Japanese beech are planted on the first Sunday in June of every year, beneath the flying of large, carp-styled wind socks. The main proponents of this practice are fish experts in marine products businesses (such as seaweed and cultured oyster cultivation) and the 70 members of the Oyster and Forest Lovers Association (led by Shigeatsu Hatakeyama). The reason for fish experts (who seemingly have no connection whatsoever with the forest business) taking part in the planting of trees is that wide-leaved natural forests help preserve water. Furthermore, land with wide-leaved natural forests absorbs and filters out impurities contained in water, and even adds to the water certain minerals such as magnesium and calcium which reside in soil and rock. As a result of this clean, mineral-rich water flowing into Kesennuma Bay from the Okawa River, there has been a favorable impact on the growth of oysters and the cultivation of seaweed. This is because there is a close connection between forests and the sea through the intermediary of the river.

The spread of wild duck agricultural methods in regions nationwide has occurred in the last two to three years. Rather than having agricultural workers pick weeds in the fields, this task is performed by wild ducks, even at the height of summer. The birds also angle their bills to eat insects from between the rice stubble, and their droppings fertilize the crops, so that little supplemental fertilizer is required. The ducks swim around the paddies year-round, and the subsequent growth of the rice plants is vigorous amid this nutrient-rich water. Such wild duck agricultural methods,

The members and supporters of the Oyster and Forest Lovers Association plant trees, and people come from far and wide (Tokyo, Hiroshima, etc.) to witness this ritual.



© 1996 Kyoto Shusho

which do not employ chemical fertilizers or agrochemicals, help to prevent water quality degradation.

Other volunteer groups release char and trout eggs into rivers. Given that the wild fish population is declining sharply, people like Mikio Sekiguchi, who feared that beautiful wild fish from naturally-laid eggs would not permanently develop if the present environmental conditions were to continue, started to restore an aquatic environment suitable for cultivating wild fish. These fish egg release activities are being effected at various rivers that flow through Tokyo, and fish associations in neighboring prefectures, such as Tochigi and Yamanashi, are also joining in.

### Town Building Centered on Rivers – Living with Water

The Chishaku River, which flows through the heart of the Chishaku District (population 1,700) of Yokkaichi City, Mie





(Above and at right) baby wild ducks are released into rice paddies to feed on weeds. By the time of the rice harvest, the ducks have matured and are shipped off.

Photographs courtesy of Akihito Kashiwagi



Volunteer groups release fish eggs into the upstream areas of the Taba River.







Prefecture, is a beautiful man-made water channel with a width of 1.5 to 2.0 meters and a course of about 1,800 meters. Until water mains were installed around 1972, the River was indispensable in sustaining the everyday activities of the community (which included washing rice before cooking, washing hands and faces, and irrigating fields and paddies). But, as water mains were laid around the mid-1970s, a large apartment block was constructed, and, as the population increased, the river suddenly became contaminated. Then, the local self-governing organizations and children's associations cooperated in earnest to restore the River to its former beauty through cleaning measures and the following related activities: releasing carp into the River; fishing out duckweed and other plant growth in the River; effecting monthly river cleaning through a rotation system; and patrolling the carp every morning and evening, especially by children's associations. At present, the number of carp released exceeds 200, and tourists from across the country come to visit this town with beautiful water and thriving schools of the brightly colored fish.

In 1989, the Genpei River, which flows through the heart of Mishima City, Shizuoka Prefecture, was the site of a prefectural project wherein high-grade water utilization facilities for agriculture were established with the participation of local residents. This project had the aim not only of serving agricultural demands, but also of being beneficial to the lives of the local residents. Their theme was "A water-oriented way of life bringing cities and agricultural villages together." For this purpose, the river was divided into eight thematic zones centering on water and the following (beginning upstream): "upstream sources, recreation, re-collection, water encounters, the arts, everyday living, agriculture, and the spirit of life." Architectural details within the project reflect each of these so-called theme zones, and it is expected that the project

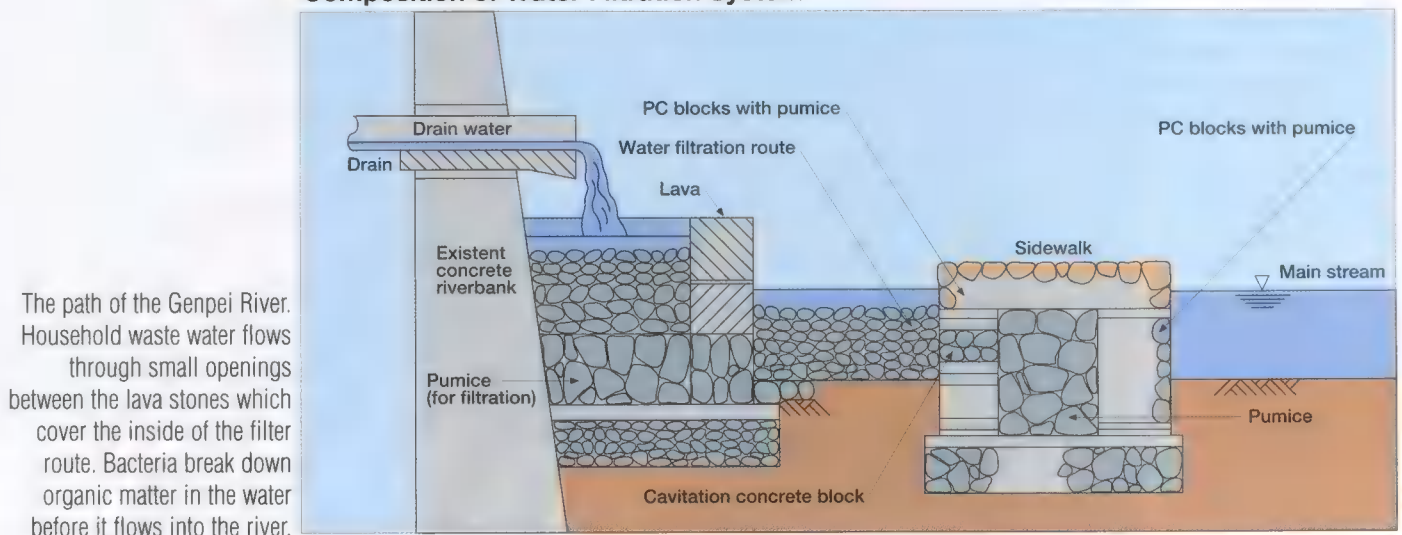


Yokkaichi City's man-made Chishaku River.

will be finalized in FY1996. Specifically, plans for the following are being drawn up: river bank protection measures, a flowing pool, walkways, mini parks, benches, outdoor lighting, waterwheel cabins, and the planting of Mishima cherry (blossom) trees. The restoration of "Mishima, the Water Town" is approaching, as the enthusiastic efforts of people from cities and agricultural villages are realized. A rest place for townsfolk may also be provided, with town planning focusing on keeping nature fully intact.

In conserving and building a pleasant water environment, the Japanese (not only the government, but also the local residents, companies and various activity groups) must now effect initiatives to cooperate as a unit to combat water problems. As a first requirement, a rich, water-based lifestyle, conveying warmth and serenity, must be restored in towns. In order to achieve this, the friendly relations between people upstream and downstream must be strengthened, and people must strive to remember the primordial relationships that exist between the forests, rivers and seas, and between the forests, rivers and towns.

#### Composition of Water Filtration System





# Experiencing Everyday Life in Japan

by Hiromi Kikuchi

Making sure that her kids eat well  
and take their naps keeps Mariam  
quite busy at kindergarten —  
but it is a labor of love!





## Exchanges of the Heart: Getting Involved with the Community and the Family

Mariam Nikbin is a 24-year-old exchange volunteer from Germany with the International Christian Youth Exchange (ICYE), an organization headquartered in Berlin, which conducts international exchange through volunteers working in approximately 30 countries. Mariam stayed with a farming family in Tsuyama City, Okayama Prefecture. Since Mariam had gained experience in Germany as a volunteer at nursery schools and homes for the elderly, she was introduced to a nursery in Okayama. "With children and the elderly, you can transcend the language barrier and communicate very deeply through the heart," says Mariam.

Meanwhile, in Tokyo's Nerima Ward, 51-year-old Indian university professor Vasudevan Pillai, who was invited to do research at Meiji University, and his wife, Valsala, are staying with a Japanese family. Professor Pillai mentions that war and atomic weapons are topics of great interest in India, whose people share a strong desire for peace. By living with the Japanese, the only people to have suffered an atomic bomb attack, Professor Pillai hopes to "comprehend the longing for peace in the Japanese heart."

Mariam and Professor Pillai have in common the fact that each one's motivation for experiencing a home-stay is not merely short-term study or mastery of the language. They are both using their time in Japan to forge close individual relationships with Japanese people, while experiencing Japanese home life and coming into contact with the local community.

The Hikosas, Mariam's host family, live in an 80-year-old Japanese house. "Through my volunteer work and living with my host family, I have been able to meet other Japanese families, too," says Mariam. "This home-stay has given me the opportunity to come into contact with a variety of Japanese people who have differing ideas and lifestyles."

On her free days, Mariam helps out at Mr. Hikasa's restaurant. She says that with all her various activities, including volunteering, calligraphy lessons, and working at the restaurant, the days are flying by. "I suppose I'm just following the typical busy Japanese lifestyle," quips Mariam.

Mr. Hikasa raises pigs in addition to operating a restaurant. With over 500 pigs on the farm, cute baby pigs are born all the time.

Professor Pillai recites a self-authored poem at his home-stay family's residence. The poem describes the sentiments of peace he felt on a visit to Nagasaki, one of two cities to have suffered an atomic bombing. At his side is his wife, Valsala.



# people

## *business and the lunch hour*

As far as most Japanese business people and clerical staff are concerned, having a good meal on one's lunch break (usually taken in a fixed one-hour period) is just a part of the job. Yet within this brief slice of time, it is possible to glimpse individual personalities in motion. We will now take a closer look at the typical urban center lunch hour, with its throngs of people searching for the perfect lunch spots.

Like the subway during rush hour, business people at lunchtime pack into little restaurants like sardines, standing as they eat out of rice bowls. It is not uncommon to see long lines outside any restaurant with a reputation for serving inexpensive and delicious meals.

However, even if one cannot get into a restaurant, there is no need to worry. In parks and on street corners, caterers targeting those who want to escape the lunchtime rush do a booming trade every day in lunch boxes, sandwiches and snacks.

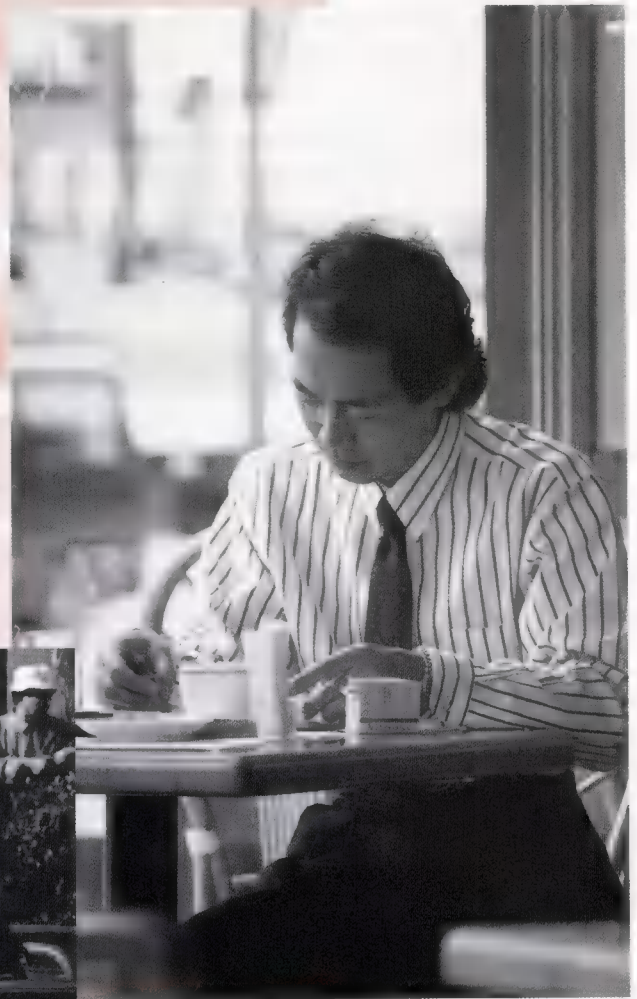
Lunchtime is basically supposed to be time off. But with the frenetic pace of business people's schedules, many instead talk shop at the lunch table. It is common to see people frantically racing their pens across documents spread out across their tables. But one may just as frequently witness exhausted workers fast asleep in their restaurant booths!

Despite the rush, lunchtime is essentially an enjoyable time for a Japanese company worker — a chance to enjoy one's co-workers outside an office context. After all, who wants to eat alone everyday, without anyone to talk to?

Lunchtime in Japan epitomizes the interpersonal relationships company workers enjoy with their peers.









# The Modern Way to Relax

by Yasunari Eshi

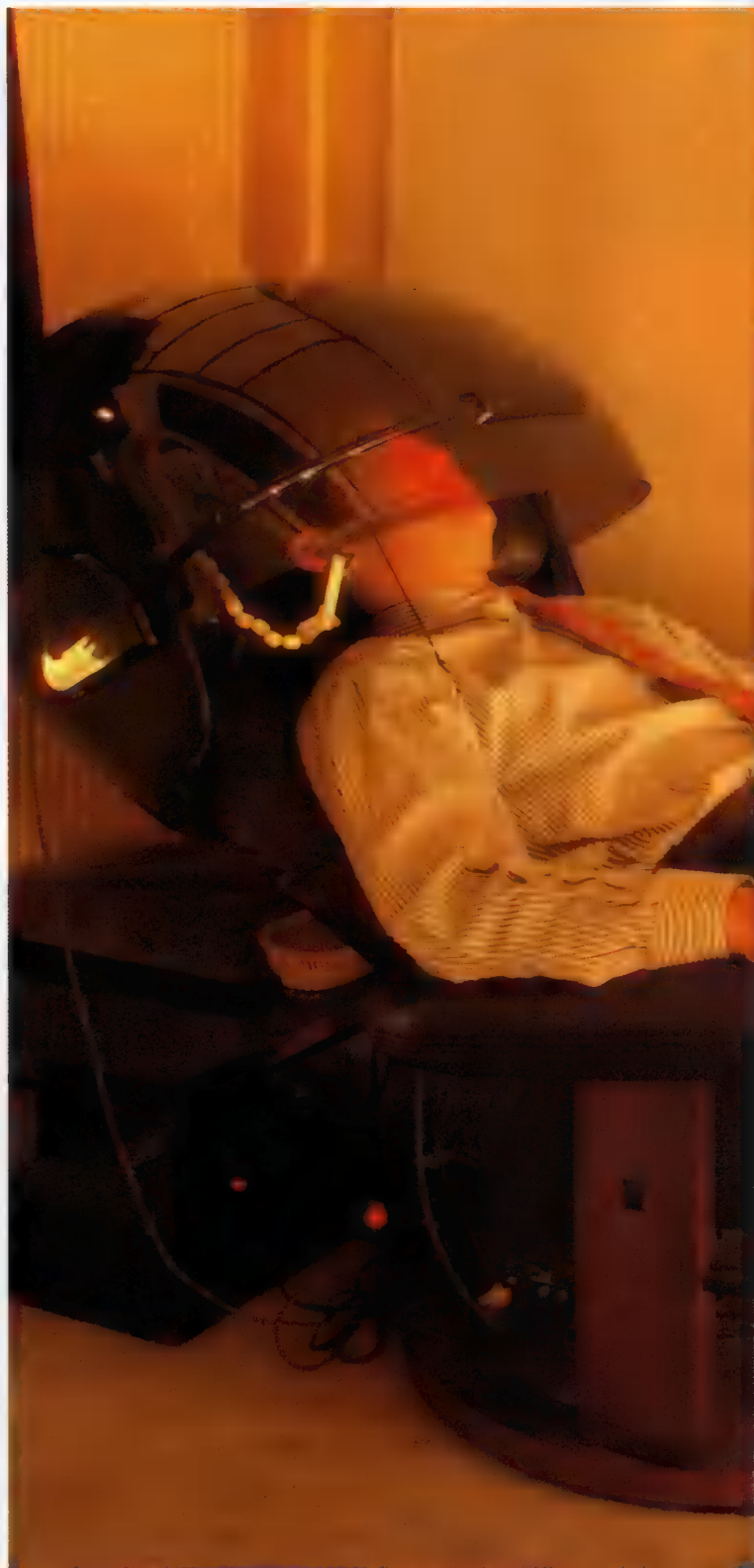
## Quick Stress Relief Methods Gaining Popularity

Japanese business people are subject to a variety of stresses, both mental and physical. These include cumbersome human relationships and worries about promotions or transfers, as well as newer conditions like what is being called "techno-stress," thanks to the proliferation of office automation. The first methods that come to mind for relieving stress are sleep and rest, but these are not always the means chosen by Japanese employees whose companies grant them very little leave.

Instead, after five o'clock, Japanese business people tend to ease their stress by haunting late-night drinking establishments (known by the "red lanterns" hung out front) or by frequenting *karaoke* bars. Still, daily drinking is beyond the capacity of many, leading to a whole new type of stress associated with socializing after five!

Thus, several stress relief methods have surfaced recently which consume only a little time during working hours.

For example, in addition to specialized relaxation facilities, businesses specializing in stress relief have opened up shop near business districts, and as each method requires only a short time, the industry is booming. Such businesses offer the ever-popular 15-minute massage, rooms in office buildings where the exhausted worker can take naps in tents set up on *tatami* mats, rest areas set up in the men's fashion sections of department stores, and relaxation machines that induce alpha waves.





New systems exist which provide stress relief in a mere 30 minutes through body-sonic equipment, aromatherapy chips, and alpha wave (brain waves characteristic of a relaxed state) inducement by way of flashing light signals.





Aromatherapy is becoming very popular, especially among women. Specialty stores are beginning to appear, selling oils and scents that are said to produce a variety of effects, mainly relaxation and stress relief.





## Targeting All Ages and Genders

So what are the special characteristics of the recent practice of replacing relaxation with stress relief?

One is that businesses specializing in stress relief are targeting all age groups and both genders. To cite one example, massage businesses, which had until now targeted mainly middle-aged and elderly men, are now very popular with female business-district clerical workers in their 20s and 30s. At the same time, stress relief methods chiefly targeted at women, including reasonably priced manicures, aromatherapy and fitness boxing, are becoming widely popular.

Another change is the growing attention to healing based on "brain conditioning" or "Eastern medicine." The principle of clearing obstacles to the mind and body through mental control is an idea that garnered widespread public attention in Shigeo Haruyama's recent best-seller, *A Great Revolution in the Brain World* (see related feature, page 31). Relaxation machines and even aromatherapy and music healing are thought to have close links to the workings of the brain.

There has also been a change in how people view stress relief methods based on traditional Eastern medicine, which has at long last come to be recognized by the World Health Organization. Even acupuncture and acupressure have a new image now, especially among the younger generations.

## Effective Work Comes From Refreshing Ourselves

Despite this new movement, there is a minority that, even if they had a little time free, would not be particularly inclined to go for stress relief. As far as these people are concerned, easing stress is exaggerated; they say a nap can be taken anytime on a park bench, and that all it takes to be refreshed is a simple cup of coffee.

However, few would say that a constant state of excessive stress can be good for work efficiency. So, in turn, many companies are now establishing their own facilities aimed at stress relief and refreshing the mind and body.

"Rest effectively, work effectively" — this is the "contemporary way" for business people to relieve stress.



The remarkable 15-minute massage has made its way to the business districts. This conventional method of relaxation is receiving new appreciation from the younger generations, particularly women.

Healing and relaxation are just two ways of relieving stress. Another effective way is to improve one's appearance. The endless stream of women thronging to this boutique seek a quick and easy manicure.





A short break in the park can be just what it takes to make a day great — especially if it includes a refreshing hot or chilled coffee from a nearby vending machine. Such little moments can be just the encouragement one needs for facing the next task at hand.



A facility for stress relief also exists on the rooftop level of a major cosmetic maker's headquarters. This facility, which consists of various-sized pebbles set into paved paths, has a relaxing massage effect on the feet when walked upon shoeless.





# New Ways for Business People to Relax

## — In Limited Time and Space —

While working away on their personal computers, and with the aid of "virtual pet" software, a growing number of business people can be found feeding or talking to their "virtual" pet dogs or tropical fish. They might also opt for 15-minute massage services during work breaks to get rid of shoulder cramps. And, sales of hot-spring guidebooks introducing day-trip spots for short weekend outings are a major hit. All of these products are designed as simple ways to help ease the stress of work and home life.

Most Japanese business people speak lightly of the physical and time limitations in their daily lives, but the fact is that these are quite restricting. Studies show that business people are sleeping less every year as they try to finish the many tasks facing them everyday in this relentless technological environment — an environment which permeates every aspect of life from workplace communications to personal shopping. To survive, business people must be able to effectively escape this spider's web of commitments, utilizing limited windows of time and space. They must become adept at shifting between time-driven, stressful environments and soothing, healing environments.

At the same time, the number of people suffering from stress-related nervous disorders, such as excessive hand washing syndrome (person feels that his/her hands are dirty and washes them many times each day) and personal odor syndrome (over-awareness of personal body or mouth odors), is rising. However, in many cases, the actual symptoms are not so bad. What is happening is that the desire to put a name on emotional stress, thereby feeling secure that the problem has been identified, is surfacing in unusual ways. Without identifying an objective source for something, there is no way of relieving the insecurity on one's own.

Within these urban confines, relaxation methods are becoming more compact and organized. It is expected that relaxation methods which are clearly defined (a certain amount of stress can be relieved by using a certain type of relaxation for a certain amount of time) and easy to do will become popular. Relaxation will follow the path of magazines and shampoo products with a large line-up of options designed for specific needs, providing choices for individuals to deal with stress in their own way. The products mentioned above all fit this description of having a clear, limited purpose.

However, people cannot relieve all of their stress by just using the limited space

and time available to them in their daily, urban lives. Stress might actually increase if people feel that relaxation is too regimented. Ultimately, the ability to handle stress comes down to the quality of personal self-control.

Even children, who used to be free to play, face a heavy load of stress from entrance examinations and personal relationships in modern, urban society. It is the business person of today who should find effective relaxation methods for these business people of tomorrow.

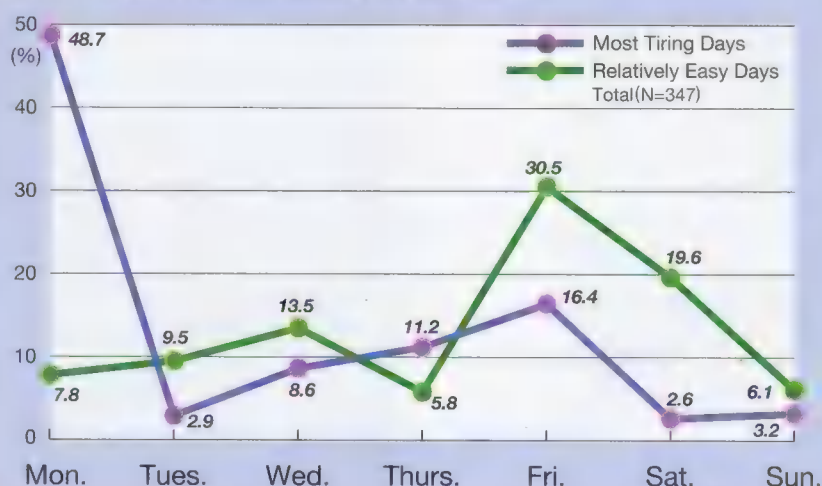
Nobuko Funaki  
Dentsu Inc.  
Marketing Division  
Product Development Studies Department

"Virtual pets" as produced by computer.



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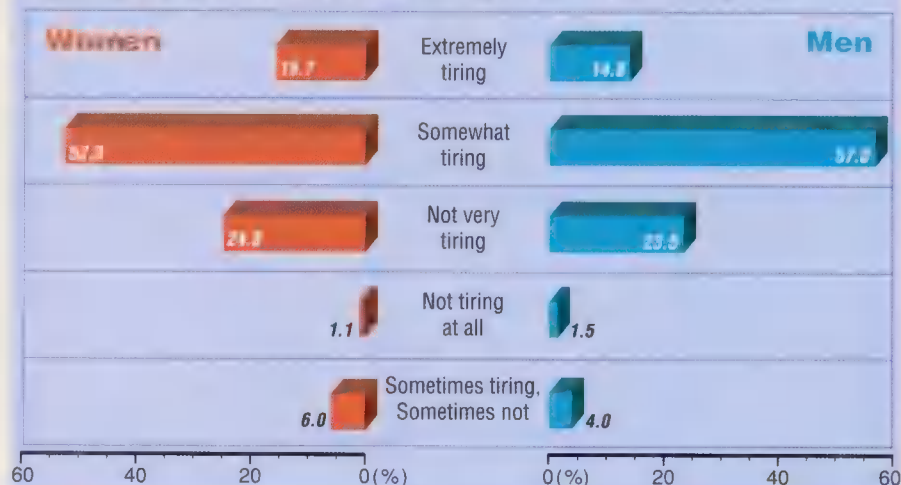
### Most Tiring Days and Relatively Easy Days



Data: Sumitomo Life Insurance Company, Sumitomo Life Wellness Foundation

Source: Questions Posed to Men and Women in the Prime of Their Lives — Survey on the Health of the Middle Aged, October 1994.

### Analysis of Workers Categorized by Degree of Stress-related Fatigue from Ordinary Work



Data: Institute of Labor Administration

Source: Survey on State of Employee Health, 1992.



## Turning Seawater Into Fresh Water Using "Membranes"

by Jin Kaneko

A large-scale desalination plant, using "membrane" technology (known to experts as reverse osmosis), is being built along the coast at Chatan, which is situated ten kilometers or so north of Naha, the capital of Okinawa, on the coastline of the East China Sea. The plant will be able to produce 40,000 tons of fresh water from the sea each day, making it one of the few plants of this scale in the world. Completion is slated for early 1997, but already parts of the facility are operating and have begun supplying water.

As Okinawa does not have any large river as a source of water, it has continued to experience chronic water shortages. So the idea of a desalination plant, which could make fresh water from seawater, was put forward as a supplementary water source that would not be subject to the vicissitudes of climate. Fresh water produced in this way will be supplied to clean water sites to be used as household water, including drinking water, along with river water collected by dams.

Other methods for deriving fresh water from seawater, apart from reverse osmosis, include distillation and electrodialysis. The reason why reverse osmosis was adopted is that it consumes



As constant swimming indicators of the water's proper chemical and saline balance, beautiful tropical fish swim freely in the desalination center's enormous cylindrical water tank. Seawater flows directly into the water tank through the inlet.

less energy than other methods. According to calculations by Okinawa Prefecture, fresh water can be obtained through reverse osmosis at a factor of 2.5 to 3.0 times less cost than through distillation.

The principle behind reverse osmosis is extremely simple. Imagine a container split down the middle by a

cellophane membrane. Pour fresh water on one side and seawater on the other. After a while, the level on the seawater side rises, because some of the fresh water passes through the cellophane membrane to the seawater side. Now, if pressure is applied to the seawater side, then, conversely, water from the seawater side passes through to the fresh water side, and the volume of fresh water rises. This is the essence of reverse osmosis.

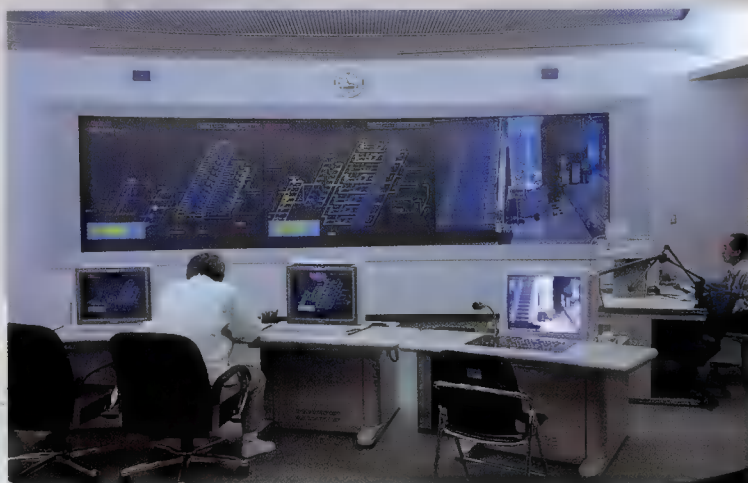
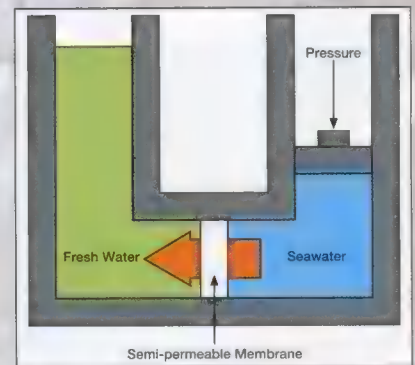
Naturally, cellophane membranes are not employed in a desalination plant. The plant in Okinawa uses reverse osmosis membrane elements that are made of an extremely fine hollow yarn. The yarn's thickness is only 0.2 microns (1/50,000 of a millimeter!). The yarn is made of a combination of high-polymeric materials called cross-linked aromatic polyamides.

At present, this desalination plant is gaining a great deal of attention from many other local government entities. In cities like Tokyo and Fukuoka, water shortages are becoming a problem, owing to rapid urbanization and changes in lifestyle. Thus in these regions, as in Okinawa, there is a concerted move toward using desalinated water as a supplementary water source.





The reverse osmosis membrane element is an essential component in the process used at the desalination plant in Okinawa. Once the plant is in full operation, it will be able to produce 40,000 tons of fresh water from the sea everyday.



There is a control room at the desalination plant, and it is here that the conditions of the incoming river water are monitored and appropriate adjustments in output are made.

***For inquiries relating to this technology, please contact:***

Okinawa Prefectural Enterprise Bureau: Izumizaki 1-2-2, Naha City, Okinawa Prefecture 900 Tel: +81-98-866-2812  
Seawater Desalination Center: Azamiyagi 1-27, Chatan-cho, Okinawa Prefecture 904-101 Tel: +81-98-936-5257



# A Special Affinity for Pottery

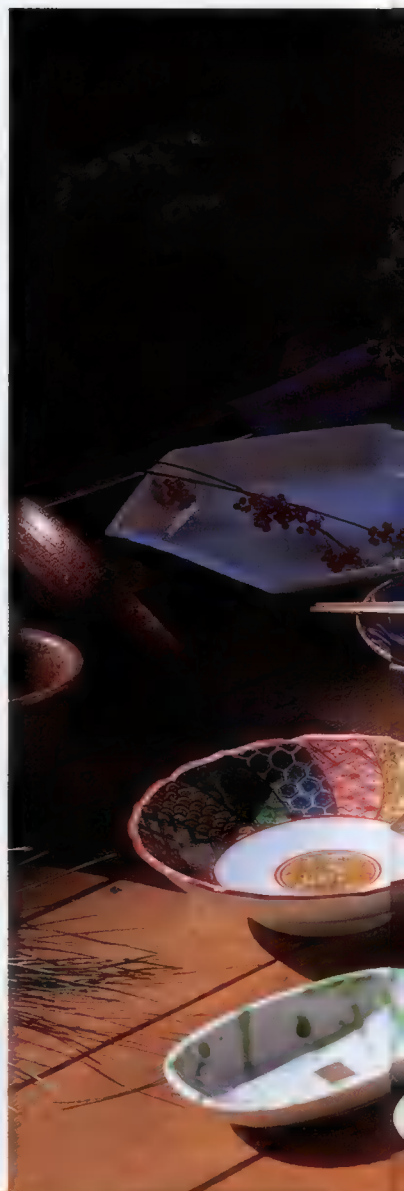
by Noriko Takeuchi

## Earthenware and Porcelain Are More Than Just Objects

If we look back at the history of Japanese pottery, its development is closely connected with the introduction of technologies from China and the Korean Peninsula. In particular, styles of pottery from the Momoyama Period to the early Edo Period (16th to 17th centuries), which had been greatly influenced by these technologies, subsequently blossomed in each region from mere imitations to cultural artworks distinctly Japanese in character. The original Japanese pottery was made around this time in Arita, Kyushu.

*Yakimono* (pottery) is produced in many parts of the country today, and is often named after its area of production – hence, *aritayaki*, *karatsuyaki*, *hagi-yaki*, *bizen-yaki*, *minoyaki* and *mashikoyaki*. Each area has its own distinctive style and tradition, using different techniques and types of potter's clay or china clay to develop an amazing variety of shapes and art forms. This variety may be divided into two general types: earthenware, which is thick, solid, and decorated with simple glazes; and porcelain, which is thin and hard as glass. Both types have honored places in the lives of Japanese – as rice bowls, tea cups, plates, teapots, *sake* cups, small *tokkuri* bottles for *sake*, flower vases, pots for plants, and more.

Ceramic flower vases are common items in the home, and are used for both traditional *ikebana* arrangements and western-style floral decorations. One of the pleasures of flower arrangement is choosing a vase with the right shape and color for creating a mood matching the flowers and the season.







There are many different types of pottery, varying by locale, method and shape. Some of the better known styles include *aritayaki*, *bizenyaki*, *kiyomizuyaki*, *shigarakiyaki*, *setoyaki*, *minoyaki*, *kutaniyaki* and *mashikoyaki*.

Raw, sliced *fugu* (blowfish) is most often served in November, December and January. Each slice is only about one millimeter thick – so thin that the pattern of the plate is visible beneath. The plate's beautiful colors and the way the fish is laid out in a flower pattern lend an air of luxury to this dish.







In some bars, customers may choose *sake* cups from among many different varieties.





## Having One's Own Personal Bowl at the Dinner Table

In Japan, people eat with chopsticks and customarily hold their bowl in one hand while bringing it to their mouths. Thus, as one cultural phenomenon unique to Japan, tactile preferences for one bowl over another have developed. In many families, each person has his or her own rice bowl and chopsticks. Many employees are also sure to have their own teacup and implements at hand for their own personal use in the workplace. Many types of pottery have become available to match each individual's respective subtle tastes for size, weight, touch, color and so on. The custom of using one's own bowl, and the care people show when choosing and buying pottery, illustrate the special place pottery has in the hearts of Japanese.

The Town of Mashiko hosts a massive *mashikoyaki* ceramics fair each spring and summer. About 400,000 people, in search of that special piece of pottery, descend on this quiet town of only 25,000 situated not far from Tokyo in the southeastern part of Tochigi Prefecture.

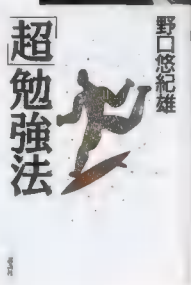




# highlights

best-selling books

Yukio Noguchi

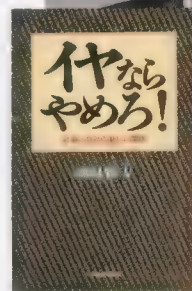


## Super Studying Methods

By Yukio Noguchi (Professor, Research Center for Advanced Science and Technology, Tokyo University)  
Kodansha Publishing Inc.

Japanese people love the phrase, "*kotsu-kotsu*," which means, "through assiduous hard work." This phrase is used in particular to describe someone working tirelessly with enormous effort to produce some great result. A person who works this hard is valued very highly. On the other hand, if one's methods are no good, one will fail no matter how hard one works. In this book the author proposes efficacious methods for acquiring knowledge, based on the idea that "blind effort is inefficient." In the Japanese business world, the criterion for praise is rapidly shifting away from the degree of loyal self-sacrifice for the company to the level of results produced. In such a changing environment, it is no wonder that this book on study methods by a popular public-sector economist is attracting business people and students who are becoming more and more aware of the importance of results.  
(December 1995, ISBN4-06-207601-2 ¥1,500)

Masao Horiba



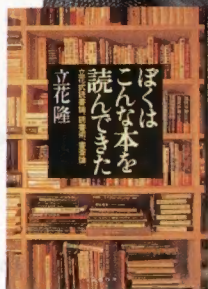
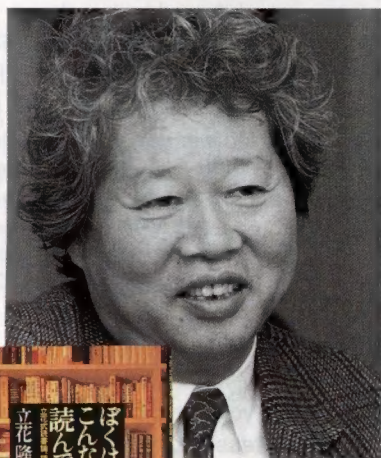
## If You Don't Like It, Quit!

By Masao Horiba (Chairman, Horiba Ltd.)  
Nihon Keizai Shimbun Inc.

In 1945, amid the ruins of postwar Japan, a student gave up his dream of becoming a nuclear physicist and instead founded his own company. He built the company from its humble beginnings as a "student venture" into one of Japan's leading manufacturers of industrial analytical equipment. His company has the unusual slogan, "Let's have fun." That brave young student is now the author of this book. In it, he describes the management and work ethics he developed over 50 years of running a company. First of all, he stresses that the individual and the company should have fun – otherwise neither can achieve satisfaction. Much of his way of thinking follows the clear, prescriptive, "If X, then do Y" nature of his book's title. The lifetime employment concept is beginning to be questioned, and the freshness of Horiba's ideas have had a tremendous impact, attracting a great many readers.  
(October 1995, ISBN4-532-16172-X ¥1,000)



## Takashi Tachibana



### The Books I Have Read

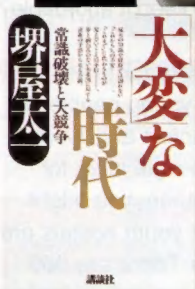
By Takashi Tachibana (Non-fiction writer and critic)  
Bungei Shunju Ltd.

Although the title might seem to evoke the response, "So what?," the average Japanese is convinced of its merit with one look at the author's name. After all, he is a well-known non-fiction writer who wrote the famous book, *Research on Kakuei Tanaka*, in 1974, after the former Prime Minister's resignation. He has also written acclaimed books on a variety of other subjects, including brain death and space.

His encyclopedic knowledge and elaborate factual analyses of mountains of information virtually guarantee superior reading of every book he publishes. Therefore, people are interested in finding out what books he is reading and why he chooses to read them. The author does not review these books. Instead, as is clear from the subtitle, *Tachibana's Thoughts on Reading, Reading Techniques and Personal Libraries*, he uses them as tools to impart practical methods for making use of the information and wisdom contained within them.

(December 1995, ISBN4-16-351080-X ¥1,500)

## Taichi Sakaiya



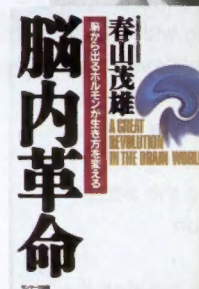
### Hard Times

By Taichi Sakaiya (professional writer)  
Kodansha Publishing Inc.

Japan today is in a period of revolutionary flux in a variety of ways. Economic growth is slow, and the prevailing view is that the high growth achieved in the past can no longer be perpetuated. In addition, Japan now faces the double challenge of dramatically lower birth rates coupled with the rapid aging of the population. It is projected that within the next ten years, Japan will have, on average, the oldest population in the world. As tends to happen with a society in the throes of revolutionary change, the conventional answers do not apply and many feel that none of the know-how accumulated to date can do much to help. People feel as if they exist in a mist and are at a loss to predict where all of this will lead. The title of the book illustrates the common awareness of many Japanese regarding the situation which has befallen them. The author breaks free from old conventions to use a variety of examples and new ideas to contend that a change in thinking is needed.

(September 1995, ISBN4-06-207582-2 ¥1,600)

## Shigeo Haruyama



### A Great Revolution in the Brain World

By Shigeo Haruyama  
(President, Denen Toshi Kosei Hospital)  
Sunmark Publishing Inc.

Despite its rather imposing title, this book is comprised mainly of useful information on how to prevent illness and live a healthful life. The author is a doctor who has combined Western and Eastern medicine in his own medical practice. These days, there is a recognition among Japanese that they are living unhealthy lifestyles (with high levels of daily stress, insufficient exercise, and irregular daily schedules) that make them susceptible to the many diseases that come on later in life (chronic diseases like diabetes or life-threatening diseases like cancer). Though there is a proverb in Japan that says, "Disease comes from the mind," this book espouses the effectiveness of proper diet and exercise, and also uses examples, such as hormonal secretions and active oxygen, to illustrate the meaning of the proverb, and to explain in laymen's terms how certain emotional moods can cause health to decline and deterioration to set in.

(June 1995, ISBN4-7631-9123-3 ¥1,600)



## Comments from the Editor

We at *Japan Pictorial* thank you, our valued reader, for your continued patronage.

From collating and studying the numerous valuable suggestions our readers have provided, we have extensively revamped the entire publication, commencing with this issue. *Japan Pictorial*, which was created to help share knowledge about Japan with people around the world, is now larger than before, with greater photographic impact and the addition of a commentary section.

Specifically, we have initiated the following enhancements: a cover story identifying various social problems currently facing Japan; a section on "people" which helps explain Japanese "gestures" and "behavioral patterns" seen in daily life; a section on "trends" which vividly describes today's Japan; and special "technology" and "culture" corners which were two features readers requested most.

We have also completely reshuffled our staff, from the photographers and journalists to the editing and production teams. We set out to upgrade the quality of our photos and text while ensuring from an aesthetic perspective, that our editing produced a more readable and attractive layout.

We appreciate your continued interest and welcome your comments on the new *Japan Pictorial*.

## Travelling by Backpack in Japan

Kathleen Schultz

**Q.** I am studying Japanese culture at university, and have a strong interest in the Japanese way of life. Instead of planning the traditional backpacking tour of Europe, I am hoping to go on a backpacking tour of Japan. Can you offer me any suggestions for planning such an excursion and how to keep it affordable?

**A.** Travelling by backpack is an exciting prospect for young people like yourself. If you use hotels and *ryokan* (traditional Japanese-style inns) for accommodation in Japan, you might spend quite a bit; but youth hostels are relatively cheap here. There are 360 across Japan, and the nightly charge per person varies from ¥2,400 to ¥3,100. Since hostels are dormitory-style, with separate quarters for men and women, you can quickly make friends and exchange the latest information on travel discoveries. The youth hostel information bureaus have guidebooks and maps translated into English. As you traverse Japan's long, thin land from east to west, we expect you will have the opportunity for plenty of encounters with the natural beauty, kindness and cultural warmth of each region.

## Household Expenses in Japan

Teresa Holtgraves

**Q.** Prices for goods are very high in Japan. Why is this so, and what percentage of the average paycheck goes for food, shelter, clothing, education, medical treatment, etc.?

**A.** According to a 1995 survey carried out by the Statistics Bureau, Management and Coordination Agency, of 8,000 households throughout Japan (excluding single-member households and households dependent upon the agriculture, forestry and fishing industries – or in other words, salary-based households), the average monthly income is ¥570,000 per household. Out of total spending, the greatest expense is food at 22.6% of

total income, followed by travel and telecommunications at 11.0%, cultural and leisure expenses at 9.5%, housing at 6.7%, clothing at 6.0% (including both clothes and footwear), lighting, heating and water at 5.6%, education at 5.3%, furniture and household items at 3.7%, and medical care at 2.7%.

## Japanese Tea

Elizabeth Beck

**Q.** Would you describe the different varieties of teas that are consumed in Japan and the significance of each? Are there any that would be particularly appealing to Western tastes?

**A.** Japanese tea is made by steaming young leaves, rubbing them and then allowing them to dry. There are a number of types, including *gyokuro* and *sencha*. *Gyokuro*, which is not at all bitter, is a high-grade tea, while *sencha* is a medium-grade tea for everyday drinking. Tea that is slightly inferior in quality, made from somewhat harder leftover leaves, is called *bancha*. *Matcha*, on the other hand, which is reserved for tea ceremonies, is green tea that has been ground into powder before brewing, and is not consumed as an everyday item. Besides these, in the summer, demand for chilled *mugicha* (barley tea) increases, and Western teas (mainly Indian), *oolong* (Chinese) and *genmaicha* are becoming everyday items. It is said that if teas are brewed with soft water, like the water found in Japan, then the taste becomes more delicate. An especially delicious way to have tea is with a sweet cake. There are plenty of vitamins in Japanese tea, so please try it.

*From this issue of Japan Pictorial on, we will try to answer through this column any questions our readers may have, or provide any information our readers may want to know about Japan. We look forward to hearing from you.*

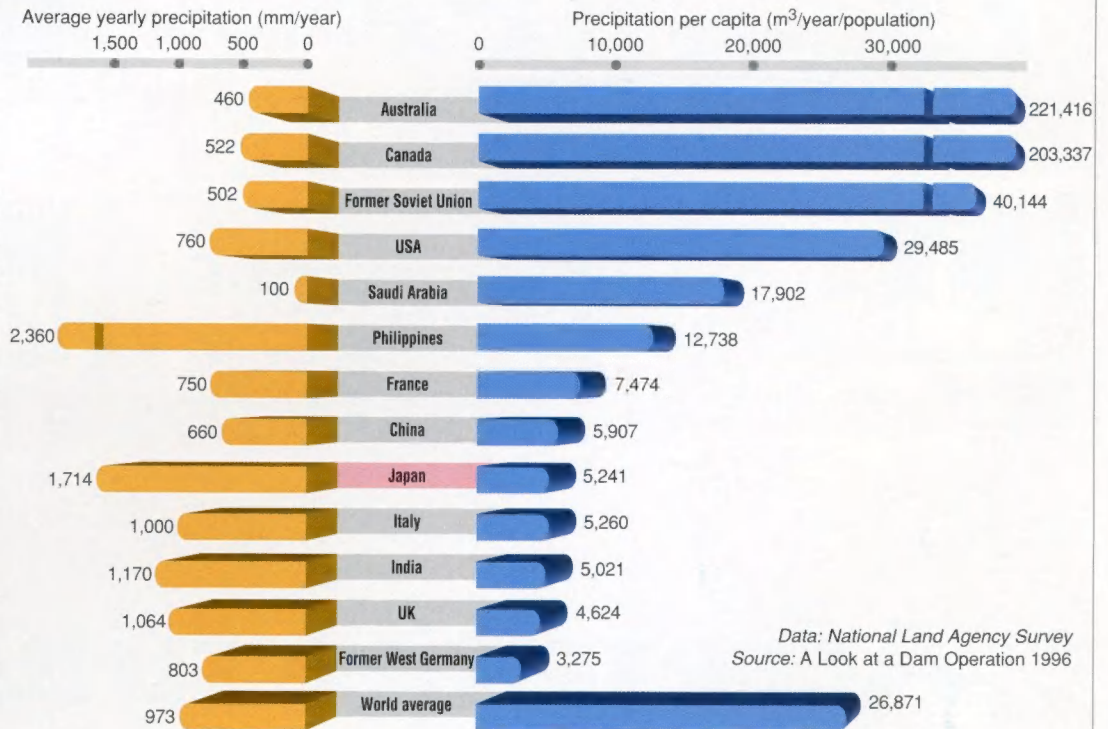


Japan is situated within a part of the world with plentiful rainfall and within the Asian monsoon belt, and annual rainfall is abundant, but for geographical and climatic reasons, the amount of usable water is low.

## Precipitation Volume

The average annual precipitation in Japan is ranked second in the world at 1,714mm, after the Philippines. However, the precipitation volume per capita is surprisingly small, being ranked ninth (5,241 cubic meters), after France (seventh) and China (eighth).

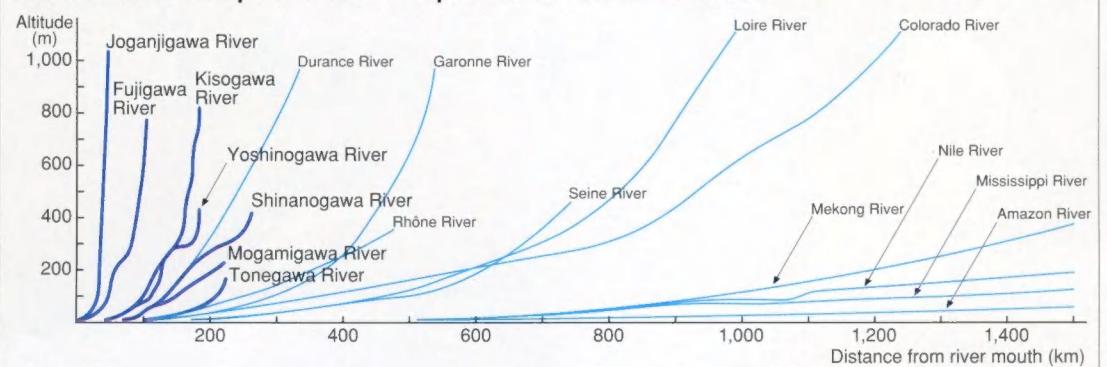
### Precipitation for Different Countries in the World



## River Gradients

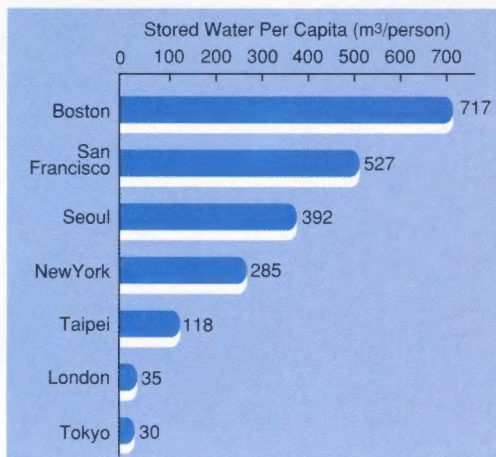
The geography of Japan is precipitous, with steep river gradients that can make for fast and powerful rivers. Also, as rainfall tends to concentrate in the tsuyu season (between late spring and early summer) and the typhoon season (between late summer and early fall), river flow volumes between normal periods and times of heavy precipitation differ greatly in Japan.

### Cross-sectional Graph of Rivers in Japan and in Continental Areas



## Dam Storage Volume

Comparing the dam storage levels for major cities in Japan with those in the rest of the world, the storage volume per capita for the Tokyo metropolis is extremely low, amounting to only one-tenth that for New York for example.



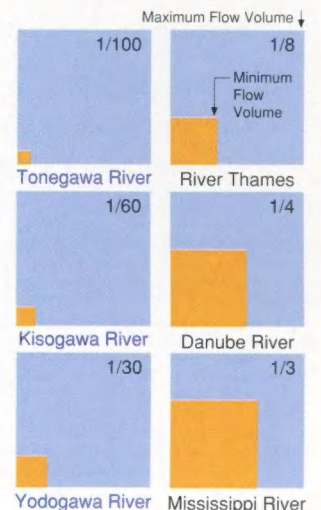
Source: Ministry of Construction

## Flow Volume

There is a big difference between the maximum and minimum flow volumes of rivers in Japan as compared with major rivers in other countries. Work on the efficient utilization of water is necessary.

Sources:  
(Japan) *The Annual Table of River Flow Volume (1984-93)*  
(Overseas) *Water Resources in Japan (1995)*

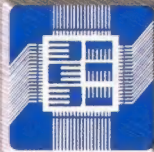
Note: Blue colors indicate Japanese rivers







Information  
Systems  
and  
Electronics



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and  
Development



Consumer  
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Power  
and  
Industrial  
Systems

HITACHI



Materials  
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